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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,045	10/03/2003	Hiroshi Shimiki	010986.52822US	6655
23911	7590	05/17/2005	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			CHEN, BRET P	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,045

Applicant(s)

SHINRIKI ET AL.

Examiner

B. Chen

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-14 are pending in this application.

Election/Restrictions

Applicant's election of claims 1-11 in the reply filed on 3/3/05 is acknowledged.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 12-14 have been withdrawn from consideration as being directed to a nonelected invention.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

It is noted that the claimed invention is directed solely to a method. The examiner suggests amending the title to reflect same.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Jimbo et al.

(5,756,402). Jimbo discloses a method of etching silicon nitride in which hydrogen radicals, oxygen radicals, and fluorine radicals are generated by exciting a mixed gas and supplying these radicals to a region near a substrate having a silicon nitride film and selectively etching said silicon nitride (col.2 lines 28-37). The excitation source can be a microwave source which can result in a plasma (col.4 lines 41-57).

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kannai et al.

(5,007,971). Kannai discloses a method of forming a photovoltaic element which comprises BP:(HF) (col.1 lines 7-15) by using a B-containing precursor from a B-containing raw material gas, a P-containing precursor from a P-containing raw material gas, hydrogen radicals from hydrogen gas (H.sub.2), optionally fluorine radicals from a F-containing raw material gas and chemically reacting them in a film-forming space containing a substrate on which a film is to be deposited to form a poly-BP:H(F) film on the substrate maintained at a desired temperature (col.5 lines 35-43). The excitation source can be high frequency plasma (col.6 lines 9-17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jimbo et al. (5,756,402). Jimbo discloses a method of etching silicon nitride in which hydrogen radicals, oxygen radicals, and fluorine radicals are generated by exciting a mixed gas as taken above. The excitation source can be a microwave source which can result in a plasma (col.4 lines 41-57). However, the reference fails to teach a high frequency plasma.

It is noted that the reference fairly teaches a plasma. One skilled in the art would realize that different excitation sources can be utilized to provide the plasma and that the use of a high frequency plasma has known advantages and disadvantages. Hence, it would have been obvious to one skilled in the art to utilize a high frequency plasma to obtain the known advantages given the primary reference teaches the utilization of a plasma to generate the radicals.

The same issue applies to claims 3-4.

In claims 5-8, the applicant requires different timing patterns for the insertion of radicals. It is well settled that determination of optimum values of cause effective variables such as these process parameters including different injection times is within the skill of one practicing in the art in the absence of a showing of criticality.

The issues of claims 9-11 have been addressed above.

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Claims 3-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kannai et al. (5,007,971). Kannai discloses a method of forming a photovoltaic element which comprises BP:(HF) by using hydrogen radicals and fluorine radicals as noted above. However, the reference fails to teach the use of a remote plasma. One skilled in the art would realize that the use of a remote plasma has known advantages and disadvantages. Hence, it would have been obvious to one skilled in the art to utilize a remote plasma to obtain the known advantages given the primary reference teaches the utilization of a plasma to generate the radicals.

The same issue applies to claim 4.

In claims 5-8, the applicant requires different timing patterns for the insertion of radicals. It is well settled that determination of optimum values of cause effective variables such as these process parameters including different injection times is within the skill of one practicing in the art in the absence of a showing of criticality.

The issues of claims 9-11 have been addressed above.

Iyer (5,629,246) has been cited as relevant art.

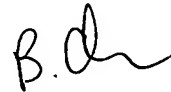
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bc
5/12/05



BRET CHEN
PRIMARY EXAMINER